

Application No. 09/636,286

RD-27791

**AMENDMENTS TO THE CLAIMS:**

This listing of claims will replace all prior versions and listings of claims in the application:

**Listing of Claims**

1. (canceled)
2. (canceled)
3. (canceled)
4. (canceled)
5. (canceled)
6. (canceled)
7. (canceled)
8. (canceled)
9. (canceled)
10. (canceled)
11. (canceled)
12. (canceled)
13. (canceled)

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14. (canceled)

15. (canceled)

16. (canceled)

17. (canceled)

18. (canceled)

19. (canceled)

20. (currently amended)      A method for forming an elongated fused quartz article comprising:

feeding a  $\text{SiO}_2$  material into a furnace melting zone comprising a refractory material wall with a protective lining selected from the group consisting of rhenium, osmium, iridium and mixtures thereof;

feeding a gas mixture comprising at least (1) ~~one inert carrier gas comprising a member selected from the group consisting of a hydrogen carrier gas and a noble carrier gas~~ hydrogen with a dew point of greater than  $30^\circ\text{C}$  and (2) an oxidizing gas into the protectively lined furnace melting zone;

fusing the  $\text{SiO}_2$  material in the protectively lined melting zone of the furnace in the presence of the gas mixture; and

drawing the fused  $\text{SiO}_2$  material from the furnace to form the fused quartz article.

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21. (canceled)

22. (previously presented) The method of claim 20, wherein the oxidizing gas is water vapor or air.

23. (previously presented) The method of claim 20, wherein the oxidizing gas is water vapor.

24. (previously presented) The method of claim 20, wherein the oxidizing gas is air

25. (canceled)

26. (previously presented) The method of claim 20, wherein the gas mixture comprises hydrogen with a dew point of greater than 50°C.

27. (previously presented) The method of claim 20, wherein said protective lining comprises rhenium.

28. (previously presented) The method of claim 20, wherein said refractory material wall comprises tungsten, molybdenum or mixtures thereof.

29. (previously presented) The method of claim 20, comprising drawing a fused SiO<sub>2</sub> material having less than 10 ppb dissolved refractory metal content from the furnace.

30. (previously presented) The method of claim 20, comprising drawing a fused SiO<sub>2</sub> material having less than 1 ppb dissolved refractory metal content from the furnace.

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31. (previously presented) The method of claim 20, comprising fusing the  $\text{SiO}_2$  material at a temperature in excess of  $2050^\circ\text{C}$ .

32. (new) A method for forming an elongated fused quartz article comprising:

feeding a  $\text{SiO}_2$  material into a furnace melting zone comprising a refractory material wall comprising tungsten, molybdenum or mixtures thereof with a protective lining selected from the group consisting of rhenium, osmium, iridium and mixtures thereof;

feeding a gas mixture comprising at least (1) one inert carrier gas comprising a member selected from the group consisting of a hydrogen carrier gas and a noble carrier gas and (2) an oxidizing gas into the protectively lined furnace melting zone;

fusing the  $\text{SiO}_2$  material in the protectively lined melting zone of the furnace in the presence of the gas mixture; and

drawing the fused  $\text{SiO}_2$  material from the furnace to form the fused quartz article.

33. (new) The method of claim 32, wherein the oxidizing gas is water vapor or air.

34. (new) The method of claim 32, wherein the oxidizing gas is water vapor.

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35. (new) The method of claim 32, wherein the oxidizing gas is air
36. (new) The method of claim 32, wherein the gas mixture comprises hydrogen with a dew point of greater than 50°C.
37. (new) The method of claim 32, wherein said protective lining comprises rhenium.
38. (new) The method of claim 32, comprising drawing a fused SiO<sub>2</sub> material having less than 10 ppb dissolved refractory metal content from the furnace.
39. (new) The method of claim 32, comprising drawing a fused SiO<sub>2</sub> material having less than 1 ppb dissolved refractory metal content from the furnace.
40. (new) The method of claim 32, comprising fusing the SiO<sub>2</sub> material at a temperature in excess of 2050 °C.
41. (new) A method for forming an elongated fused quartz article comprising:
- feeding a SiO<sub>2</sub> material into a furnace melting zone comprising a refractory material wall with a protective lining selected from the group consisting of rhenium, osmium, iridium and mixtures thereof;
- feeding a gas mixture comprising at least (1) one inert carrier gas comprising a member selected from the group consisting of a hydrogen carrier gas and a noble carrier gas and (2) an oxidizing gas into the protectively lined furnace melting zone;

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fusing the  $\text{SiO}_2$  material in the protectively lined melting zone of the furnace at a temperature in excess of  $2050^\circ\text{C}$  in the presence of the gas mixture; and  
drawing the fused  $\text{SiO}_2$  material from the furnace to form the fused quartz article.

42. (new) The method of claim 41, wherein the oxidizing gas is water vapor or air.

43. (new) The method of claim 41, wherein the oxidizing gas is water vapor.

44. (new) The method of claim 41, wherein the oxidizing gas is air

45. (new) The method of claim 41, wherein the gas mixture comprises hydrogen with a dew point of greater than  $50^\circ\text{C}$ .

46. (new) The method of claim 41, wherein said protective lining comprises rhenium.

47. (new) The method of claim 41, comprising drawing a fused  $\text{SiO}_2$  material having less than 10 ppb dissolved refractory metal content from the furnace.

48. (new) The method of claim 41, comprising drawing a fused  $\text{SiO}_2$  material having less than 1 ppb dissolved refractory metal content from the furnace.